

**Monthly Progress Report  
September 2017 Progress Report  
Crab Orchard National Wildlife Refuge  
AUS OU RI/FS**

**Actions Taken to Comply with Consent Order**

During the month of September 2017, activities of significance included:

1. Preparation of AOC mandated reports.
2. During the August 28<sup>th</sup> meeting regarding the second draft FS Pilot Report revision (described in the August Progress Report), FWS requested that the document include a placeholder for future technical memos regarding the AUS 0001 arsenic risk remedy area and the AUS OU groundwater risk assessment. The latter will address potential groundwater use by livestock along with other ecological and agricultural receptors, compared to their associated preliminary remedial goals (PRGs) that had been previously established. These future tech memos will be included with the complete draft FS Report.
3. FWS requested on September 6<sup>th</sup> that USGS and FWS personnel plan a future stream water quality workshop at the Refuge. GDOTS/S&W were also invited to attend. The workshop's purpose is to discuss impacts and future monitoring concerns for surface streams receiving contaminant discharges from identified groundwater plumes (FWS later confirmed on September 18<sup>th</sup> the work shop had been scheduled for January 23, 2018).
4. S&W submitted a preliminary set of documents regarding the second draft FS Pilot Report revision to FWS for review on September 6<sup>th</sup> and 8<sup>th</sup>. These included respective revised alternative comparison tables and responses to FWS' comments to the August 3<sup>rd</sup> draft FS Pilot Report.
5. Following its review of the materials submitted for the second draft FS Pilot Report revision, FWS notified S&W on September 15<sup>th</sup> that a second meeting should be convened to resolve remaining issues the Agency identified. This meeting was subsequently scheduled for September 20<sup>th</sup>.
6. FWS and S&W met on September 20<sup>th</sup> as planned. FWS's primary issue concerned the latest revised draft FS Pilot alternative comparison tables for the two AUS 0A2B plumes. These arrays included the MNA alternative and the associated remedial costs extended to a 100-year duration as requested. However, FWS indicated that the treatment alternatives needed more variation (with associated costs).

The parties agreed that this issue was dependent on the duration (i.e. long-term monitoring period) following the initial remedial action required to reach ARAR remedial goals. Subsurface conditions at the AUS OU along with the RI findings and historical data confirm incomplete degradation has occurred since contaminants were released. As a result, the natural attenuation study (pending USEPA approval) will be performed to inform current natural attenuation conditions. Nevertheless, specialists with associated expertise (e.g. USGS) have indicated that no actual attenuation rates can be estimated.

Based on these discussions, the following action items were confirmed:

- To expedite circulation of the draft Pilot FS Report to the other Agencies, S&W will include an alternative for the two plumes showing a reduced long-term monitoring period coupled with a recent in-situ technology using liquid activated carbon (LAC). This technology is recent and no long-term results at other sites have been published, but the available examples show rapid contaminant reduction in a fraction of the expected duration.

- Based on feedback to FWS from other consultants regarding phytoremediation, FWS requested that this technology be eliminated for source control. However, it will be retained as an alternative for long-term restoration.
- Following circulation of the draft FS Pilot Report, FWS will convene a conference call with S&W/GDOTS, USGS and a natural attenuation specialist from Southern Illinois University (SIU) to discuss options for estimating monitoring durations to reach remedial goals. This approach will include potential modeling as well as active treatment for reduced areas at the dissolved-phase portions of the plumes (this meeting via conference call is scheduled for October 10<sup>th</sup>).
- S&W will submit the second draft FS Pilot Report revision to FWS the week of September 25<sup>th</sup> (FWS confirmed on October 6<sup>th</sup> that the document was complete).

FWS also confirmed during this September 20<sup>th</sup> meeting that SRS will assume oversight responsibility for the AUS OU on October 1<sup>st</sup>. AECOM will retain oversight responsibility for the PCB OU, with assistance on ecological and groundwater risk issues for the AUS OU.

7. FWS circulated its groundwater risk assessment to S&W and the other Agencies on September 25<sup>th</sup>.

### **Results of Sampling and Tests**

FWS performed supplementary surface soil sampling at the chromium/ditch AUS 0A4W remedy area (north segment) and at the arsenic AUS 0001 remedy area on March 21<sup>st</sup> – 22<sup>nd</sup>. The final validated data was received on June 26<sup>th</sup>. The AUS 0001 data was used to reduce the size of the remedy area described in the draft Pilot FS Report.

This sampling was performed to provide further detail on the bounds of these remedy areas.

### **Work Planned for the Next Two Months**

During the months of October and November 2017 planned activities include:

1. S&W/ GDOTS will attend the meeting/ conference call with FWS, USGS and SIU to discuss natural attenuation monitoring durations on October 10<sup>th</sup>.
2. S&W will continue preparation of the alternatives discussion for the remaining remedy areas as part of the complete draft FS Report.

### **Problems Encountered**

None.